

UNCLASSIFIED

AD NUMBER
AD837585
NEW LIMITATION CHANGE
TO Approved for public release, distribution unlimited
FROM Distribution authorized to U.S. Gov't. agencies and their contractors; Administrative/Operational Use; MAY 1963. Other requests shall be referred to Department of the Army, Fort Detrick, Attn: Technical Release Branch/TID, Frederick, MD 21701.
AUTHORITY
Fort Detrick/SMUFD ltr dtd 4 Feb 1972

THIS PAGE IS UNCLASSIFIED

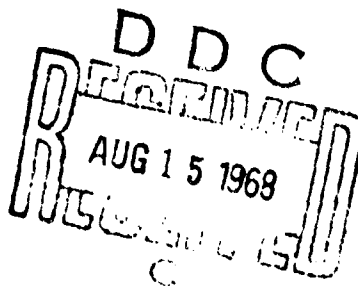
AD 837585

TRANSLATION NO. 806

DATE: May 1963

DDC AVAILABILITY NOTICE

Reproduction of this publication in whole or in part is prohibited. However, DDC is authorized to reproduce the publication for United States Government purposes.



STATEMENT #2 UNCLASSIFIED

This document is subject to special export controls and each transmittal to foreign governments or foreign nationals may be made only with prior approval of Dept. of Army, Fort Detrick, ATTN: Technical Release Branch/TID, Frederick, Maryland 21701

5

IMMUNOCHEMISTRY. -- IMMUNOCHEMICAL STUDY
OF SERUM FROM RATS RAISED STERILELY

[Following is the translation of an article by Michel Gleye, Edmond Sacquet and Georges Sandor, in the form of a note presented at the 5 March 1962 session of the Academy of Sciences by Jacques Trefouel, in the French-language publication Comptes rendus de l'Academie des Sciences, (Reports of the Academy of Sciences) 1962, Vol. 254, No. 11, pp. 2100-2102, 12 Mar 63]

Gamma globulins that contain serum from adult rats raised sterilely have a high electrophoretic mobility.

The immunochemical study of the serum of animals raised sterilely has not yet been made, to our knowledge. It has merely been confirmed several times since the work of Thorbecke and his colleagues [See Note] that the serum of these animals has a relatively low content of electrophoretic gamma globulins. The present immunochemical study of serum from rats raised sterilely provides some specific data on this subject.

([Note:] G. J. Thorbecke, H. A. Gordon, B. Westmann and J. A. Reyniers, J. Infect. Diseases, Vol CI, 1957, p. 237.)

We used adult rats produced by raising them sterilely in the Centre de Selection des Animaux de Laboratoire [Center for Selecting Laboratory Animals] of the C.N.R.S. Their serum was studied both by immunoelectrophoresis and by Ouchterlony's methods, in comparison with rabbit serum antiserum of a rat raised naturally.

In Figure 1 we reproduced the results of the saturation test performed with the serum of a "sterile" rat in comparison with "natural" antirat serum. We see that although all the serous antigens are indeed present in the serum of the "sterile" rat, one of them is present only in a very small amount. In fact, a very weak trace appears slowly between the cupping-glass containing the "natural" antirat serum saturated with "sterile" rat serum on the one hand, and the cupping-glasses containing either serum from a "sterile" rat or serum from a "natural" rat on the other hand. Consequently, a complex, an antigen-antibody, soluble in the presence of a great excess of antibodies, has diffused commencing with the cupping-glass containing the saturated antiserum (see the article by two of us [See Note]).

([Note:] G. Sandor and M. Gleye, C. R. Soc. Biol., Vol CLIV, 1960, p. 725.)

From a superficial examination of the immunoelectrophoretic diagram (Fig. 2) one might conclude that gamma globulins are completely absent from the serum of a "sterile" rat. But a more detailed study proves that only the relatively slow electrophoretic mobility component of the gamma globulins is missing. One can count, in fact, toward the cathode,

four components in the serum from a "sterile" rat as well as in the serum from a "natural" rat. Three of these traces amount to β and α_2 globulins and are easy to identify equally in the two types of serum. The fourth trace is the only one that is different: its electrophoretic mobility characteristic of gamma globulins in the case of the serum from a "natural" rat is, on the contrary, characteristic of beta globulins in the case of the serum from a "sterile" rat (Fig. 3). There is reason to believe that the component present in a small amount, revealed by Ouchterlony's method, is precisely this gamma globulin that has been cut off from its "slow" components.

Some interesting problems are raised in connection with the fact brought out in this study. One may wonder, in particular, if the gamma globulins with a high cataphoretic velocity that are the only ones persisting in animals raised sterilely do not result from a base synthesis that is independent of antigenic stimuli.

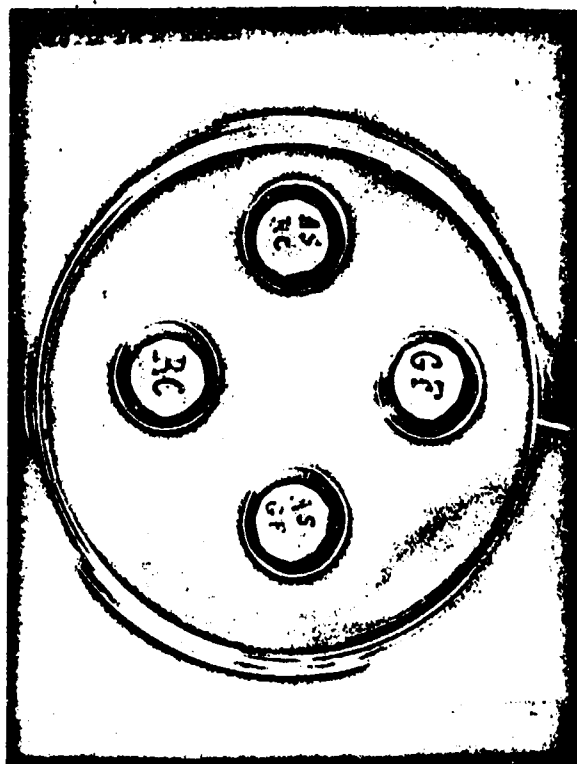


Figure 1. -- Immunochemical comparison between serum from a "sterile" rat and serums from a "natural" rat. (Ouchterlony's method).

Upper cupping-glass: "natural" antirat serum, saturated with "natural" rat serum;

Center cupping-glass, left: serum from a "natural" rat;

Center cupping-glass, right: serum from a "sterile" rat;

Bottom cupping-glass: "natural" anti-rat serum, saturated with "sterile" rat serum.

On detailed examination, a very weak continuous trace of precipitation is discovered between the two center cupping-glasses and the bottom one.



Figure 2. -- Immunoelectrophoresis of "natural" rat serum and of "sterile" rat serum, compared with "natural" antirat serum.

Top: "Natural" rat serum; bottom: "sterile" rat serum.



Figure 3. -- Graphic representation of the immunoelectrophoresis in the area of low mobilities. 1, gamma globulins; 2, beta globulins; 3 and 4, beta or alpha 2 globulins.

- END -